

DOCKET NO: 282560US8

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
JONATHAN RICHARD THORPE : EXAMINER: DWIVEDI, M.
SERIAL NO: 10/664,189 :
FILED: SEPTEMBER 17, 2003 : GROUP ART UNIT: 2168
FOR: INFORMATION STORAGE AND :
RETRIEVAL

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is an appeal from the decision of the Examiner dated June 11, 2009, which finally rejected Claims 1-23 and 27-30 in the above-identified patent application. A Notice of Appeal was timely filed on October 9, 2009.

I. REAL PARTY-IN-INTEREST

The real part-in-interest is Sony United Kingdom Limited.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative, and the assignees are aware of no appeals which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-23 and 27-30 have been finally rejected. Claims 24-26 are canceled. The rejections of Claims 1-23 and 27-30 form the basis for this appeal. Appendix VIII includes a clean copy of appealed Claims 1-23 and 27-30.

IV. STATUS OF AMENDMENTS

No amendments after final rejection have been filed.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1 is directed to an information retrieval system in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of said information items, so that similar information items map to nodes at similar positions in the array of nodes. The system includes a data network 820, an information retrieval client system 800 connected to the data network, and a plurality of information item storage nodes 810 connected to the data network. (Figure 12) Each storage node 810 comprises a store 870 configured to store a plurality of information items and an indexer 890. The indexer is configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item. (Page 14, lines 3-9) The indexer is configured to send the data representing the information item to the client system via said data network. (Page 14, lines 7-8) The indexer is configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system, to cause data representing information items which have not previously been transmitted to the client system to be forwarded to the client system, and to update the register in accordance with the data representing information items which were forwarded to the client system.

(Page 14, lines 10-25) The client system includes a node position generating unit configured to generate a node position in respect of each information item represented by said received data responsive to the data representing the information item received from said indexer of a storage node. (Page 13, line 25 to page 14, line 2)

Independent Claim 17 is directed to an information storage node for use in an information retrieval system in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of said information items, so that similar information items map to nodes at similar positions in the array of nodes. The storage node 810 is connected via a data network 820 to an information retrieval client system 800 including a node position generating unit configured to generate a node position in respect of each information item represented by said received data responsive to data received from the storage node. (Page 13, line 25 to page 14, line 2) The storage node 810 includes a store 870 configured to store a plurality of information items and an indexer 890. The indexer is configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item. (Page 14, lines 3-9) The indexer is configured to send the data representing the information item to the client system via said data network, the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system, to cause data representing information items which have not previously been transmitted to the client system to be forwarded to the client system, and to update the register in accordance with the data representing information items which were forwarded to the client system. (Page 14, lines 10-25)

Independent Claim 20 is directed to a method including storing a plurality of information items at each storage node (page 13, lines 16-22); generating by each storage

node data representing an information item stored at that storage node, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item (Page 14, lines 3-9); maintaining by an indexer of each storage node a register indicative of whether the data representing the information item has previously been transmitted to the client system (Page 14, lines 10-25); forwarding data representing information items which have not previously been transmitted to the client system from the storage node to the client system (Page 14, lines 10-25); updating the register in accordance with the data representing information items which were forwarded to the client system; and generating a node position in respect of each information item represented by said received data by said client system responsive to the data representing the information item received from the indexer of the storage node. (Page 14, lines 10-25)

Independent Claim 21 is directed to a method including storing a plurality of information items (page 13, lines 16-22); generating data representing the information items, the data representing the information items, when stored, requiring less storage capacity than a corresponding information item (Page 14, lines 3-9); maintaining by an indexer of each storage node a register indicative of whether the data representing the information item has previously been transmitted to the client system (Page 14, lines 10-25); forwarding data representing information items which have not previously been transmitted to the client system from the storage node to the client system (Page 14, lines 10-25); and updating the register in accordance with the data representing information items which were forwarded to the client system. (Page 14, lines 10-25)

Independent Claim 22 is directed to a method including generating a node position in respect of each information item represented by said received data responsive to the data representing the information item received from said indexer of a storage node (Page 13, line 25 to page 14, line 2); maintaining by the indexer of each storage node a register indicative of

whether the data representing the information item has previously been transmitted to the client system (Page 14, lines 10-25); forwarding data representing information items which have not previously been transmitted to the client system from the storage node to the client system (Page 14, lines 10-25); and updating the register in accordance with the data representing information items which were forwarded to the client system. (Page 14, lines 10-25)

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed on appeal are:

- (a) whether Claims 21 and 23 are statutory subject matter under 35 U.S.C. §101; and
- (b) whether Claims 1-23 and 27-30 are unpatentable under 35 U.S.C. §103(a) over Fanning et al. (U.S. Patent No. 6,742,023, hereinafter “Fanning”) in view of Needham et al. (U.S. Patent Application Publication No. 20020194256, hereinafter “Needham”) and Kohonen et al. (“Self Organization of a Massive Document Collection,” hereinafter “Kohonen”).

VII. ARGUMENTS

A. Claims 21 and 23 are statutory subject matter under 35 U.S.C. §101

With regard to the rejection of Claims 21 and 23 under 35 U.S.C. §101, it is respectfully noted that Claim 21 *is* a method claim having two steps: “storing” and “transmitting,” contrary to the assertion in the outstanding Office Action that “They are clearly not a series of steps.”¹ Further, it is respectfully submitted that the correct test for subject matter eligibility is the machine or transformation test described in *In re Bilski*. In the present case, Claim 21 recites a particular machine or apparatus, namely a storage node

¹See the outstanding Office action at page 2, line 25.

including an indexer and a client system. In fact, the outstanding Advisory Action conceded that Claim 21 claims a particular machine at page 2, lines 13 and 14.

However, the outstanding Office Action and the outstanding Advisory Action apparently assert that any claim including the word “logic” is not statutory subject matter. No basis for this assertion has been provided. It is respectfully noted that MPEP §2106.01 states:

Computer programs are often recited as part of a claim. USPTO personnel should determine whether the computer program is being claimed as part of an otherwise statutory manufacture or machine. In such a case, the claim remains statutory irrespective of the fact that a computer program is included in the claim. The same result occurs when a computer program is used in a computerized process where the computer executes the instructions set forth in the computer program. Only when the claimed invention taken as a whole is directed to a mere program listing, i.e., to only its description or expression, is it descriptive material per se and hence nonstatutory.
(Emphasis added.)

Accordingly, even if the assertion that the preamble of Claim 21 recites a computer program due to use of the word “logic,” Claim 21 remains statutory if at least one of the elements of this claim is tied to a particular machine, as required in *In re Bilski*. As noted above, it is respectfully submitted that the claimed storage node including an indexer and a client system is a particular machine, as conceded in the outstanding Advisory Action. It is further respectfully submitted that there is no basis for ruling that such a statutory machine is non-statutory based on inclusion of the word “logic” in the preamble of the claim. Consequently, it is respectfully submitted that Claim 21 (and Claim 23 dependent therefrom) is in compliance with all requirements under 35 U.S.C. §101.

B. Claims 1-23 and 27-30 are patentable over Fanning in view of Needham and

Kohonen

Claim 1 recites in part:

a data network;
an information retrieval client system connected to said data network; and
a plurality of information item storage nodes connected to the data network,
wherein *each storage node comprises a store configured to store a plurality of information items and an indexer, the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item, the indexer further configured to send the data representing the information item to the client system via said data network, the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system, to cause data representing information items which have not previously been transmitted to the client system to be forwarded to the client system, and to update the register in accordance with the data representing information items which were forwarded to the client system, and*
said client system includes a node position generating unit configured to generate a node position in respect of each information item represented by said received data responsive to the data representing the information item received from said indexer of a storage node.

Fanning discloses a peer-to-peer file distribution system that in which files are mirrored as a function of their popularity (referred to as use-sensitive distribution of data in Fanning). This is achieved by making downloaders of a file into new distributors of it, so that frequently downloaded files generate many distributors or so-called mirrors.²

Thus, it is respectfully submitted that the specific aims of Fanning are not aligned with those of the invention recited in Claim 1, in which smaller representations of larger information items held at a remote storage node are passed from the remote storage node to a client if an index at the storage node indicates that this smaller representation has not yet been

²Fanning, column 1, lines 46-59 and column 2 lines 2338.

sent to the client. The client can then use this smaller representation to indicate a position of the respective information item within an array that is topologically arranged to indicate similar information items at similar positions.

The outstanding Office Action cited column 5, lines 13-40 and 42-59 of Fanning as describing “each storage node comprises a store configured to store a plurality of information items and an indexer,” and column 13, lines 6-24 of Fanning as describing “the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item.” The cited passages of Fanning equate the information item to a CD, and the smaller representation to an MP3 or similarly compressed audio file. However it is clear that the CD is *not* stored in the storage node (as the outstanding Office Action notes, Fanning explicitly locates the full data at an *external* source - see column 13, line 20), which is clearly contrary to “each storage node comprises a store configured to store a plurality of information items and an indexer.” Similarly, it is respectfully submitted that the storage node would not include the CD drive, ripper software etc, needed to generate the MP3, which would be required to maintain the assertion of equivalence with “the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item” in the outstanding Office Action. Similar arguments apply to full and compressed video and still images mentioned in the same cited passage.

Thus, it is respectfully submitted that Fanning does not describe the above two quoted features, and in fact Fanning actively teaches away from “each storage node comprises a store configured to store a plurality of information items and an indexer.”

Alternatively, assuming *arguendo* the compressed audio/video is considered to be the information item, Fanning clearly does not then disclose generating a smaller representation

of it. In this case, “the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item” is clearly not disclosed by Fanning, and hence also neither is “the indexer further configured to send the data representing the information item to the client system via said data network.”

The fact that either the full information item is *not* stored in the storage node in Fanning or that a smaller representation of the full information item is *not* generated in Fanning (one or the other of these interpretations must hold) means that a system based upon the teachings of Fanning cannot include the structural features of the claimed invention.

The outstanding Office Action conceded that Fanning does not describe “the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system, to cause data representing information items which have not previously been transmitted to the client system to be forwarded to the client system, and to update the register in accordance with the data representing information items which were forwarded to the client system” and cited Needham as describing these features.

Referring now to the passages of Needham cited by the outstanding Office Action, it is clear that Needham discloses a first user (acting as a server) passing an ‘index’ identifier for an information item to a second user acting as a client. When retrieval of the information item is desired, the second user then searches for it locally and if not found then uses the identifier to request it from the first user’s server.

As such, the first user’s server does *not* maintain any register of whether the file has already been sent to the second user. In this regard, the outstanding Advisory Action cites the discussion of the DFC field of Needham as describing this feature. The DFC measures the “distance from creator.” Thus, the creator of a photograph, Bob, *always* has a DFC equal to

zero, whether or not he has passed the photograph onto another user. With regard to Andy, who received the photograph from Bob, Andy *always* has a DFC equal to 1, whether or not he has passed on the photograph to anyone else. Accordingly, the DFC field of Needham in no way maintains a register indicative of whether any information has previously been transmitted to another system. Thus, it is respectfully submitted that that Needham does not disclose “the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system.”

By the same argument, we also respectfully assert that Needham does not disclose that the indexer in the storage node updates the register when data items are forwarded to the client.

Finally, it is respectfully submitted that Needham does not in fact disclose a register in the server (storage node) and hence such a server cannot know what data has or has not been previously transmitted to a client, and hence cannot cause previously unsent data to now be sent. Accordingly, Needham cannot disclose “the indexer configured ... to update the register in accordance with the data representing information items which were forwarded to the client system.”

Moreover, it is respectfully submitted that there would be no suggestion or motivation to combine Needham with Fanning, as the combination of Needham with Fanning would make Fanning unsuitable for its intended purpose and would require a substantial redesign of Fanning. In this regard, the teachings of Needham are incompatible with those of Fanning with regards to the “data representing information items.” In Fanning, depending upon the interpretation used, either there is no data representing information items or such data is a compressed version of the full information item. In Needham, the only data sent other than the full information item is an identifier of the full information item. As this does not seem compatible with either reading of Fanning, adding the index identifiers from Needham into

Fanning would make Fanning unsuitable for its intended purpose and/or would require a substantial redesign of Fanning.

Therefore, it is respectfully submitted that Needham does not remedy any of the deficiencies in Fanning identified previously, and the claimed invention remains both novel and inventive over Fanning and Needham both singly and in combination.

With regard to Kohonen, we firstly note the distinction between “storage nodes” (where “nodes” refers to nodes in a communication network) and the array of nodes to which respective information items may be topologically mapped, which are for example nodes of a self organizing neural network.

It is respectfully submitted that Kohonen does not disclose any of the features listed above, and consequently does not remedy any of the deficiencies in Fanning and Needham identified previously. Consequently, as the proposed combination does not teach or suggest “a storage node,” “an indexer,” and “a node position generating unit” as defined in Claim 1, Claim 1 (and Claims 2-15 dependent therefrom) is patentable over Fanning in view of Needham and Kohonen.

In a similar manner, the “store” of Claim 16, the “node position generating unit” of Claim 17, the “maintaining,” “forwarding,” and “updating” of Claims 20-22 are not believed to be taught or suggested by the proposed combination either.

In particular, as Needham does not describe maintaining a register indicative of whether the data has previously been transmitted to any other system, Needham cannot describe “the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system” as recited in Claim 16, or “maintaining by an indexer of each storage node a register indicative of whether the data representing the information item has previously been transmitted to the

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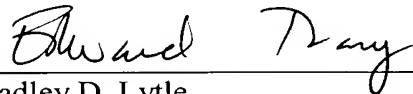
client system” as recited in Claims 20-22. Accordingly, Claims 16-23 are also patentable over Fanning, Needham, and Kohonen.

Conclusion

It is respectfully requested that the outstanding rejections be REVERSED.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

Claim 1: An information retrieval system in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of said information items, so that similar information items map to nodes at similar positions in the array of nodes; said system comprising:

- a data network;
- an information retrieval client system connected to said data network; and
- a plurality of information item storage nodes connected to the data network,

wherein each storage node comprises a store configured to store a plurality of information items and an indexer, the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item, the indexer further configured to send the data representing the information item to the client system via said data network, the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system, to cause data representing information items which have not previously been transmitted to the client system to be forwarded to the client system, and to update the register in accordance with the data representing information items which were forwarded to the client system, and

said client system includes a node position generating unit configured to generate a node position in respect of each information item represented by said received data responsive to the data representing the information item received from said indexer of a storage node.

Claim 2: The system according to claim 1, wherein said indexer at each

storage node is operable to transmit data to said client system to said client system in batches; each batch comprising at least data derived from some of those information items stored at that storage node for which data has not previously been transmitted to said client system.

Claim 3: The system according to claim 2, wherein each batch of data comprises data derived from those information items stored at that storage node for which data has not previously been transmitted to said client system.

Claim 4: The system according to claim 1, wherein said indexer at each storage node is operable to transmit to said client system a batch of data derived from information items stored at that storage node in response to an information retrieval operation at said client system.

Claim 5: The system according to claim 1, wherein said indexer at each storage node is operable to detect an information item which is modified or newly stored at that storage node and, in response to such a detection, to send a batch of data derived from that information item to said client system.

Claim 6: The system according to claim 1, wherein said data network is an internet network.

Claim 7: The system according to claim 6, wherein one or more of said storage nodes are internet search servers.

Claim 8: The system according to claim 1, wherein said information items are at least partially textual; and said data derived from a stored information item comprises the whole of said textual content of that information item.

Claim 9: The system according to claim 1, wherein said data derived from a stored information item comprises textual data indicative of said content of the stored information item.

Claim 10: The system according to claim 1, wherein said client system comprises a graphical user interface for displaying a representation of at least some of said nodes as a two-dimensional display array of display points within a display area on a user display.

Claim 11: The system according to claim 10, wherein said client system comprises: (i) a user control for defining a two-dimensional region of said display area; and (ii) a detector for detecting those display points lying within said two-dimensional region of said display area.

Claim 12: The system according to claim 11, wherein said graphical user interface is operable to display a list of data representing information items, being those information items mapped onto nodes corresponding to display points displayed within said two-dimensional region of said display area.

Claim 13: The system according to claim 12, wherein said client system comprises a user control for choosing one or more information items from said list;

said graphical user interface being operable to alter manner of display within said display area of display points corresponding to selected information items.

Claim 14: The system according to claim 1, wherein said data derived from an information item includes an identification of said storage location of that information item.

Claim 15: The system according to claim 14, wherein said identification comprises a universal resource indicator (URI).

Claim 16: An information storage node for use in an information retrieval system in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of said information items, so that similar information items map to nodes at similar positions in the array of nodes; said storage node being connected via a data network to an information retrieval client system including a node position generating unit configured to generate a node position in respect of each information item represented by said received data responsive to data received from said storage node; the storage node comprising:

a store configured to store a plurality of information items and an indexer, the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item, the indexer further configured to send the data representing the information item to the client system via said data network, the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system, to cause

data representing information items which have not previously been transmitted to the client system to be forwarded to the client system, and to update the register in accordance with the data representing information items which were forwarded to the client system.

Claim 17: An information retrieval client system in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of said information items, so that similar information items map to nodes at similar positions in said array of nodes; said client system being connectable via a data network to one or more information item storage nodes each comprising a store for storing a plurality of information items and an indexer, the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item, the indexer further configured to send the data representing the information item to the client system via said data network, the indexer configured to maintain a register indicative of whether the data representing the information item has previously been transmitted to the client system, to cause data representing information items which have not previously been transmitted to the client system to be forwarded to the client system, and to update the register in accordance with the data representing information items which were forwarded to the client system, the client system comprising:

a node position generating unit configured to generate a node position in respect of each information item represented by said received data responsive to the data representing the information item received from said indexer of a storage node.

Claim 18: A portable data processing device comprising the client system according to claim 17.

Claim 19: A video acquisition and/or processing apparatus comprising the client system according to claim 17.

Claim 20: An information retrieval method in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of the information items, so that similar information items map to nodes at similar positions in the array of nodes in a system comprising a data network, an information retrieval client system connected to said data network, and one or more information item storage nodes connected to said data network; said method comprising:

storing a plurality of information items at each storage node;

generating by each storage node data representing an information item stored at that storage node, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item;

maintaining by an indexer of each storage node a register indicative of whether the data representing the information item has previously been transmitted to the client system;

forwarding data representing information items which have not previously been transmitted to the client system from the storage node to the client system;

updating the register in accordance with the data representing information items which were forwarded to the client system; and

generating a node position in respect of each information item represented by said received data by said client system responsive to the data representing the

information item received from the indexer of the storage node.

Claim 21: A method of operation of an information storage node for use in an information retrieval system in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of said information items, so that similar information items map to nodes at similar positions in the array of nodes; said storage node being connectable via a data network to an information retrieval client system having logic, responsive to data received from the storage node, for generating a node position in respect of each information item represented by the received data; said method comprising:

storing a plurality of information items;

generating data representing the information items, the data representing the information items, when stored, requiring less storage capacity than a corresponding information item; and

maintaining by an indexer of each storage node a register indicative of whether the data representing the information item has previously been transmitted to the client system;

forwarding data representing information items which have not previously been transmitted to the client system from the storage node to the client system; and

updating the register in accordance with the data representing information items which were forwarded to the client system.

Claim 22: A method of operation of an information retrieval client system in which a set of distinct information items map to respective nodes in an array of nodes by mutual similarity of said information items, so that similar information items map

to nodes at similar positions in the array of nodes; said client system being connectable via a data network to one or more information item storage nodes each comprising a store for storing a plurality of information items and an indexer, the indexer configured to derive data representing an information item, the data representing the information item, when stored, requiring less storage capacity than a corresponding information item, the indexer further configured to send the data representing the information item to the client system via said data network, said method comprising:

- generating a node position in respect of each information item represented by said received data responsive to the data representing the information item received from said indexer of a storage node;

- maintaining by the indexer of each storage node a register indicative of whether the data representing the information item has previously been transmitted to the client system;

- forwarding data representing information items which have not previously been transmitted to the client system from the storage node to the client system; and

- updating the register in accordance with the data representing information items which were forwarded to the client system.

Claim 23: A computer readable medium including computer executable instructions, wherein the instructions, when executed by a processor, cause the processor to perform the method according to any one of claims 20 to 22.

Claims 24-26 (Canceled).

Claim 27: The system according to claim 1, wherein the data is metadata derived from the information item.

Claim 28: The system according to claim 1, wherein the data is the information item with all stop words removed.

Claim 29: The system according to claim 1, wherein the data is a list of all stem words included in the information item.

Claim 30: The system according to claim 27, wherein the data is a feature vector derived from the metadata.

IX. EVIDENCE APPENDIX

None.

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X. RELATED PROCEEDINGS APPENDIX

None.